



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/562,876

12/29/2005

Kenji Ishii

2005 2064A

6903

513 7590 10/30/2007
WENDEROTH, LIND & PONACK, L.L.P.
2033 K STREET N. W.
SUITE 800
WASHINGTON, DC 20006-1021

EXAMINER

HEINCER, LIAM J

ART UNIT

PAPER NUMBER

4134

MAIL DATE

DELIVERY MODE

10/30/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/562,876

Applicant(s)

ISHII ET AL.

Examiner

Liam J. Heincer

Art Unit

4134

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/2006 and 12/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

The abstract of the disclosure is objected to because there is a typo such that the last two lines read “at least one of a and b” rather than “at least one of m and n”. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: there is a typo on page 4 such that it reads “at least one of a and b” rather than “at least one of m and n”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "provided that at least one of a and b is not 0" in line 18. There is insufficient antecedent basis for this limitation in the claim.

For the purpose of further examination the limitation will be interpreted as reading “one of m and n is not zero”.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for

Art Unit: 4134

patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Amentani et al. (JP 2003-012796). Note a machine translation is being used for JP 2003-012796 and all references will be towards this translation.

Considering Claim 1: Amentani et al. teaches a process for producing a bi-functional phenylene ether oligomer compound comprising oxidatively polymerizing (¶0005) 2,2',3,3',5,5'-hexamethyl-(1,1' biphenyl)-4,4'-diol (¶0007) and 2,6-dimethylphenol (¶0009) in the presence of a copper containing catalyst (¶0011) and 4-dimethylaminopyridine/a tertiary amine (¶0011) or ethyl isopropylamine/a secondary amine having a secondary alkyl group (¶0011).

Considering Claim 4: Amentani et al. teaches the monovalent phenol as being 2,6-dimethylphenol or a mixture of 2,6-dimethylphenol and 2,3,6-trimethylphenol (¶0009).

Considering Claim 5: Amentani et al. teaches the ratio of bivalent phenol and monovalent phenol as being from 1:1 to 1:15 (¶0015).

Claims 1 and 3-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishii et al. (6,689,920).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Considering Claim 1: Ishii et al. teaches a process for producing a bi-functional phenylene ether oligomer compound comprising oxidatively polymerizing (2:34-39) a biphenol of instant formula (2) (formula 2) with a monovalent phenol of instant formula (3) (Formula 6) in the in

Art Unit: 4134

the presence of a copper containing catalyst (7:43-45) and 4-dimethylaminopyridine/a tertiary amine (7:47-64).

Considering Claim 3: Ishii et al. teaches the amine as being charged in an amount of 20 to 70% by weight and the residual amine being added during the reaction (9:6-22).

Considering Claim 4: Ishii et al. teaches the monovalent phenol as being 2,6-dimethylphenol or a mixture of 2,6-dimethylphenol and 2,3,6-trimethylphenol (7:11-20).

Considering Claim 5: Ishii et al. teaches the ratio of bivalent phenol and monovalent phenol as being from 1:1 to 1:15 (8:25-39).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amentani et al. (JP 2003-012796) as applied to claim 1 above, and further in view of Bilow (US Pat. 3,669,929).

Considering Claims 2 and 3: Amentani et al. teaches the process of claim 1 as shown above. Amentani et al. also teaches adding the catalyst system to the reactor prior to the addition of the monomers/charging the reactor with the catalysts (¶0016).

Amentani et al. does not teach the addition of additional catalyst after the initiation of the reaction. However, Bilow teaches adding additional catalyst to a reaction after initialization (10:1-11). Amentani et al. and Bilow are combinable as they are concerned with the same field of endeavor, namely polyphenylene polymer chemistry. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have added the balance of the catalyst system as in Bilow in the process of Amentani et al., and the motivation to do so would have been, as Bilow suggests, to drive the reaction to completion (10:1-11).

Amentani et al. does not teach the amount of catalyst charged in the reactor as being in the claimed amounts. However, it is well known in the art to optimize result effective variables such as catalyst concentration. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have optimized the catalyst concentration in the process of Amentani et al., and the motivation to do so would have been to control the amount of heat given off by the reaction. See MPEP § 2144.05.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO form 892.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 and 3-5 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 5, and 6 of U.S. Patent No. 6,689,920 in view of Mitsui et al. (US Pat. 6,521,735).

Considering Claim 1: Patent '920 teaches a process for producing a bi-functional phenylene ether oligomer compound comprising oxidatively polymerizing (2:34-39) a biphenol of instant formula (2) (formula 2) with a monovalent pheonol of instant formula (3) (Formula 6) in the in the presence of a catalyst (claim 1) and an amine (claim 1).

Patent '920 does not teach the catalyst as being a copper compound. However, Mitsui et al. teaches using a copper containing compound as a catalyst for a polyethylene ether reaction (4:30-33). Patent '920 and Mitsui et al. are combinable as they are concerned with the same field of endeavor, namely phenylene ether production. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have used the copper containing compound of Mitsui et al. as the catalyst in the process of Patent '920, and the motivation to do so would have been, as Mitsui et al. suggests, copper is a highly active catalyst for polyphenylene production (1:38-45).

Patent '920 does not teach the amine as being as claimed. However, Mitsui et al. teaches using a secondary amine with a secondary alky group in a polyethylene ether reaction (5:49-56). Patent '920 and Mitsui et al. are combinable as they are concerned with the same field of endeavor, namely phenylene ether production. It would have been obvious to a person having ordinary skill in the art at the time of the invention to avhe used the secondary amine of Mitsui et al. as the catalyst in the process of Patent '920, and the motivation to do so would have been, as

Mitsui et al. suggests, the amine is a highly active catalyst for polyphenylene production (1:38-45).

Considering Claim 3: Patent '920 teaches the amine as being charged in an amount of 20 to 70% by weight and the residual amine being added during the reaction (claim 3).

Considering Claim 4: Patent '920 teaches the monovalent phenol as being 2,6-dimethylphenol or a mixture of 2,6-dimethylphenol and 2,3,6-trimethylphenol (claim 5).

Considering Claim 5: Patent '920 teaches the ratio of bivalent phenol and monovalent phenol as being from 1:1 to 1:15 (claim 6).

Claims 2 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,689,920 in view of Mitsui et al. (US Pat. 6,521,735) as applied to claim 1 above and further in view of Bilow (US Pat. 3,669,929).

Considering Claim 2: Patent '920 and Mitsui et al. collectively teach the process of claim 1 as shown above.

Patent '920 does not teach the addition of additional catalyst after the initiation of the reaction. However, Bilow teaches adding additional catalyst to a reaction after initialization (10:1-11). Amentani et al. and Bilow are combinable as they are concerned with the same field of endeavor, namely polyphenylene polymer chemistry. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have added the balance of the catalyst system as in Bilow in the process of Amentani et al., and the motivation to do so would have been, as Bilow suggests, to drive the reaction to completion (10:1-11).

Patent '920 does not teach the amount of catalyst charged in the reactor as being in the claimed amounts. However, it is well known in the art to optimize result effective variables such as catalyst concentration. It would have been obvious to a person having ordinary skill in the art at the time of the invention to have optimized the catalyst concentration in the process of Amentani et al., and the motivation to do so would have been to control the amount of heat given off by the reaction. See MPEP § 2144.05.

Correspondence

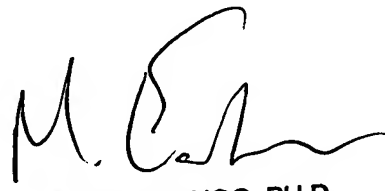
Art Unit: 4134

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LJH


MARK EASHOO, PH.D.
SUPERVISORY PATENT EXAMINER

October 17, 2007

26/OCT/07